

SYSTEM AND PROCESS FOR REDUCING IMPURITIES

ABSTRACT OF THE DISCLOSURE

An impurity gettering device can be installed between a source and a reactor to reduce an impurity from a fluid before it reaches the reactor. More particularly, the impurity gettering device can getter an inorganic, polar, hydrogen-containing impurity (e.g.,  $H_2O$ ,  $NH_3$ , etc.) from a halogen-containing fluid (e.g., a fluorine-containing liquid or gas) by forming ligands to a metal-containing compound to form a complex. In one example, a fluid source may include  $HF$  and  $H_2O$ , which can flow through the impurity getting device that includes  $COF_2$ . The  $COF_2$  can getter the  $H_2O$  and form  $CoF_2 \cdot ZH_2O$ , where  $Z$  is an integer. The fluid may become anhydrous  $HF$  that can be processed by a reactor, such as an electrolytic cell. By removing  $H_2O$  before the fluid reaches the electrolytic cell, adverse effects of  $H_2O$ , such as consumption of a carbon anode, particle generation, etc. can be reduced.